except, of course, when drugs are given the doses must be less.

It would be wise, and comparatively inexpensive, for all stock-owners to provide themselves with the necessary instruments for the treatment of cases of this nature in ruminants. A trocar and canula costs from $1.50 to $2.00; a probary and gag from $4.00 to $5.00, and six feet of ½-inch garden hose, about 10 cents per foot. The instruments can be procured from any dealers in veterinary instruments, and the hose from hardware men.

"WHIP."

Silo Roofs.

A year ago we built a cement-block silo, and have no roof on yet. We wish a round, cone-shaped roof, and would like to know what kind of shingles to use. What would be a suitable pitch? Our silo is 12 ft. 2 in. inside, and 30 ft. high.

H. BROS.

Ans.—As information in regard to the roofing of silos is of general interest, we reprint from former issues descriptions of three different silo-roofs.

Experience has shown that the silo is very much improved by being roofed. It strengthens and makes more secure structures made out of wooden staves, adds to the appearance of every kind of silo, and, by keeping out rain, snow and frost, preserves the silage in more palatable condition. Those who have tried silos without and with roofing, concur that the extra investment is profitable. Two styles of roofs in use in Middlesex County (East), Ont., may be described, one on the farm of Charles Shiels, and the other on that of A. W. Venning. Both silos are built of cement-concrete, that of Mr. Shiels being 32½ feet high, and 14 feet in diameter inside. On top of the wall, a wooden circle of inch lumber, on which the foot of the scantling rafters rest, is held in place by iron bolts that extend down into the top of the wall, and are attached to the uppermost reinforcing rod, which makes a very secure job, as the bolts are threaded, and nuts were put on, holding the circle down tight. The roof boards are battened, and, instead of a gothic window through which to receive the corn at filling time, a hinged door, 2 x 4 ft., is placed in the roof. On the opposite side is a similar one, for getting out when the silo is full. A small metal cone covers the peak of the roof, which is simple in construction.

The roof on Mr. Venning's silo is not expensive, but is strong, and should be quite durable, if kept painted. The plate, which was fitted and bolted to the top of the silo before the concrete had set, was made of inch lumber, doubled. The silo being 12 feet in diameter inside, allowing for the wall and projection of roof, 10-foot lumber was sufficient to give it half-pitch. Four rafters were cut the right level to be toe-nailed to the plate, and centered on a post or whatever kind of ornament may be fancied on the top. In this case it is an old church-spire. Four false rafters were then fitted in between the main rafters. Eight short girts were fitted and spiked between the rafters, half the distance up the roof; these girts were slightly circled. It required 28 boards 10 feet long and 10 inches wide, ripped diagonally, making 56 pieces 10 inches wide at one end to build the roof and gothic for the window. Nine boards of the same dimensions were required to be sawed into battens 3 inches wide by ½ inch thick. These triangular boards were nailed to the plate at the bottom, the girt in the center and the post at the top, covering each crack with a batten, completing the work, with the exception of a space two feet wide, over which the gothic is built, the posts of which are three feet high, thus leaving room for a window 2 x 3 feet, to be hinged on the inside. No scaffolding is required to build this roof, except one plank 16 feet long, and two boards 7 feet long. The plank lies on top of the silo, with the end projecting where the gothic is to be built, thus making a platform for a man to stand on, to build the gothic and finish the job, complete, without having to climb on the roof. The total cost, allowing nothing for the owner's time, which was only a day, and the plate on the silo, which was not very expensive, as it was sawed out of short boards that were not valuable for any other purpose, was as follows:

37 boards 10 ft. long, 10 in. wide; 8 scantling 10 ft. long, 2 x 4, for rafters; 2 scantling, 12 ft. long, 2 x 6, for girts; a few feet of dressed lumber for finishing the gothic—making a total of 400 ft. of lumber, at $28 per M.	$11.20
Dressing and sawing boards	.50
Paint	1.20
Spikes and nails	.50
Assistance of one man for less than a day	1.75
Total	$15.15

A good feature of this silo is the rear passage, lighted with a couple of windows.

Another, from Leeds Co., Ont., is described by the owner as follows:

Having roofed my silo last fall by a somewhat different plan than usual, which seems to do this trick very well, and is cheap and, I think, durable, I will describe it. My silo is 14 x 30 feet, stave type. Sheathing was of lumber 1 in. x 8 in. x 10 ft., ripped cornerwise at the sawmill, making it 1 x 8 in. at one end, and tapered to nothing at the other. In building the roof, I did not use any rafters. For a center support, I used the rim and tire of a light wheel, about 4 ft. 8 in. in diameter, and, as the lumber was about 3½ inches wide where it crossed the wheel rim, I wired each board securely to the rim, hammering the wire outside down smoothly. Nearer the top, where the lumber was about one inch wide, I nailed one into the other, so that when finished the one side supported the other. Any person wanting to put a weather-vane on, could leave the hub and spokes in the wheel for a bottom support. At the eaves, the lumber was wired to the silo, as well as nailed. I put the wire through holes in the roofing about three inches apart, the ends passing down inside the silo, and out through the side, one above the top hoop, and twisted together, which makes blowing off out of the question. The following is an estimate of the cost:

225 ft. of 1-inch hemlock, at $14 per M.	$ 3.15
2¾ rolls of felt roofing, at $2.50 per roll	6.88
1 sash and glass	.60
10 pounds wire, at 3 cents per pound	.30
1 man, three days	6.00
Total	$16.93

T. G. K.

Rack for Hay Loader.

Editor "The Farmer's Advocate":

I am sending you two photographs showing a sectional hayrack which has been used on our farm for the past five years, giving good satisfaction. The bed of the rack is of 2 x 12-inch plank, 16 feet long, and is cut away for front wheels, so as to turn easy. On the outside of the sills there is a series of rollers, 2 x 6-in., like pulleys, made of maple, and put on with ½-inch by 4½-inch lap screws, two feet apart, and two inches down from the top of the sills. The front half of the deck is built on a pair of 2 x 4-inch scantlings, 8 feet long, which rest on the rollers. There is a ladder, 6 feet high, on the front end of this part. The back half of the deck is built in two sections, the division being across the rack, and is hinged in the middle and to the back end of the sills, and is folded up against a pair of stakes three feet in height on the end of sills, while the front half is being loaded.

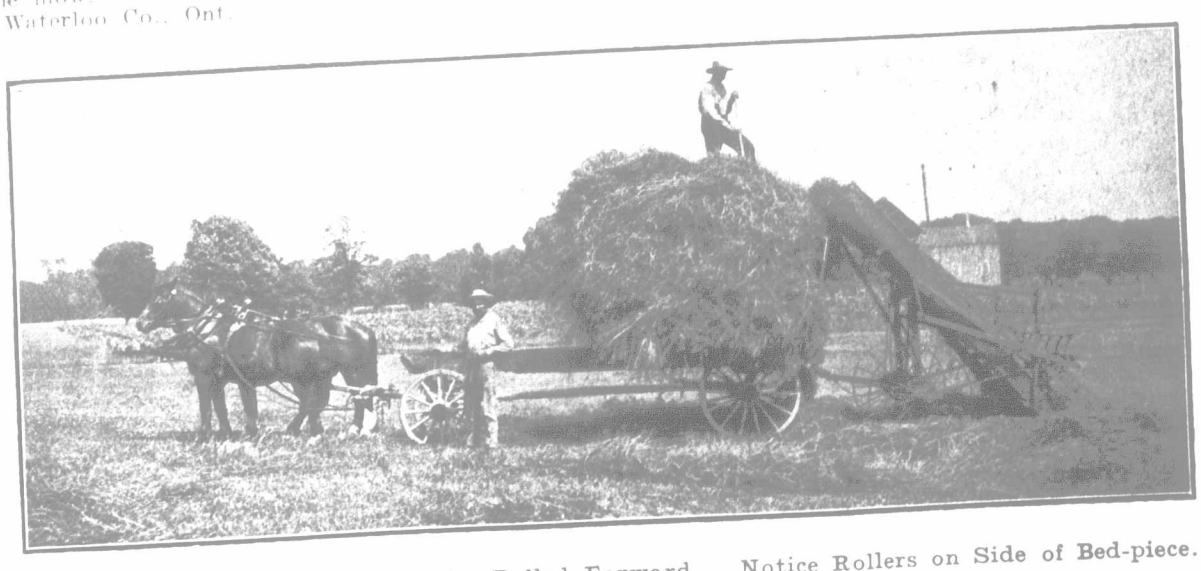
At present we use a small tackle, with 1¼-inch rope, to pull the one-half load ahead when it is loaded, and it is about as good as anything for the purpose. It is necessary to have bolsters with short stakes, so that the moving part of the rack does not strike them. A hinged stop-block to hold the front section in position when back is also necessary.

One man can load hay more easily with this rack than two men with the old-style rack, at least that is what one man said after using ours a day. It takes from one to two minutes to move the half load ahead, depending somewhat on the ground level. There is one farmer using a rack copied from ours, and he liked it so well that he intends making another.

We have a rack-lifter in the barn, and pull the load up to top, and then use a horse-fork for unloading. This saves a long haul on the horse-fork rope, and by hitching the rope to hooks in the purline plate at each end of the mow, and changing ends a few times, we reduce the amount of spreading needed, and find that the hay also keeps better than when dumped in the center of the mow.

GEO. A. SMITH.

Waterloo Co., Ont.



Front Half of Load Ready to be Pulled Forward. Notice Rollers on Side of Bed-piece.

Harvesting Alfalfa.

At a meeting of the Kansas State Board of Agriculture, John Powers, of Marion, said: "Four cuttings of hay per season is a normal yield for a field of good alfalfa, and it should reach an aggregate of from four to six tons per acre. It should be cut earlier in its growth than other grasses, the best time being when it is beginning to bloom. Too much should not be cut before it is cared for, for if it is allowed to get wet while curing, the hay loses nearly half its value as a feed. The best method for curing is to let it wilt enough after mowing so the rake will gather it up clean, and then let it cure in the windrow. When cured in this manner, it is important that proper facilities should be at hand for putting it in the stack as quickly as possible, otherwise it will become so dry that the foliage, which is the best part of the hay, will be lost in handling, especially if it has to be drawn from the field in wagons. The second cutting is considered the best to use for seed, though yields of good quality have been threshed from the other cuttings. The seed crop should be cut when nearly all the pods have turned brown. It may be cut with a self-binder, self-rake reaper, or mowing machine with a carrying attachment. When cut and bound, it is possible to avoid waste better than by other methods. Avoid stacking, if possible, as stacks take water easily, which is liable to cause the seed to turn dark in color. Thresh in field with clover-huller. In closing, it seems meet to quote the following, from R. E. Smith's article, entitled, 'The Kingdom of Alfalfa is Come': 'When some Sheban queen shall come from the granaries of the North or the cotton-fields of the South to prove this king of plants, she will exclaim, I have heard of thy wonders and thy greatness, of thy roots silently subsoiling and enriching the soil, and perforating the earth for water to a depth of thirty feet, with an unbroken perennial growth of a hundred years; but behold, the half has never yet been told of thy prosperity so full and free.'"

DISCUSSION.

Mr. Peck.—"I would like to ask the speaker if he has had experience in cutting his seed crop with the binder?"

John Powers.—"Yes, sir; I have had experience with cutting it with a binder, and, in fact, cutting it almost with the scissors. If your alfalfa is high enough so that it can be cut with the binder, it can be cut with less waste. I tie the bundles and put them in shocks like oats; then it is not so liable to spoil."

Alfalfa Beats Summer-fallow.

W. J. Spillman.—"The only legitimate place for the summer-fallow is in a region where there is not rainfall enough in one year to grow a crop. In some parts of the State of Washington they are farming with as little as eight inches of rainfall a year. By plowing in April, harrowing all summer, keeping a dust mulch and no weeds, they imprison all the winter's rain and keep it until the next winter. Then they sow wheat and catch another winter's rain, so they have sixteen inches of rain to raise a crop with. In Central Kansas I do not believe the summer-fallow method would be best. It will make the next crop a little larger, but the question in my mind is whether you would get a large enough crop to pay you for two years' use of the land."

Mr. Barber.—"Would you get as much if you would put it in clover?"

W. J. Spillman.—"I think more. I will tell you what I would rather do: Alfalfa is still better. If you can raise alfalfa, I would a whole lot rather put in alfalfa than summer-fallow."—[Discussion at Kansas State Board of Agriculture.